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Braithwaite et al.

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(54) **CARTRIDGE FOR CONTROLLED PRODUCTION OF HYDROGEN**

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(57) **ABSTRACT**

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C01B 3/02 (2006.01)
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CPC . **C01B 3/02** (2013.01); **C01B 3/065** (2013.01);
Y02E 60/362 (2013.01)

(58) **Field of Classification Search**
CPC C01B 3/065; C01B 3/02; B01J 8/0235;
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See application file for complete search history.

A reaction hydrogen production control mechanism is provided that includes, a solid sodium borohydride mixture, a liquid fuel reactant, at least one liquid delivery medium (LDM), a movable boundary interface (MBI) and a reaction zone, where the MBI is disposed to provide a constant contact between a reacting surface of the solid fuel mixture and the primary LDM to form the reaction zone. A reaction in the reaction zone includes a hydrolysis reaction. The MBI moves according to a spring, gas pressure, or an elastic membrane. Product paths are disposed to transfer reactants from the system. The product paths can include a channel on a surface of the solid fuel mixture, a channel disposed through the solid fuel mixture, a channel disposed about the solid fuel mixture, a contained region disposed about the solid fuel mixture, or a conduit abutting the solid fuel mixture.

20 Claims, 6 Drawing Sheets

